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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,596	10/23/2001	Joseph T. Apuzzo	POU900183US1	3794

7590 08/13/2004  
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Albany, NY 12203

EXAMINER

CURCIO, JAMES A F

ART UNIT	PAPER NUMBER
----------	--------------

2122

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/006,596

Applicant(s)

APUZZO ET AL.

Examiner

James Curcio

Art Unit

2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/23/2001</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Claims 1-35 of application 10/006596 are pending.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claim 1-4, 8, 10-15, 19, 21-28, 32, 34-35 are rejected under 35 U.S.C. 102(a) as being anticipated by Darty (US006173440B1).

4. As per claims 1, 12, 23, and 25, Darty discloses the following steps:

Providing an abstraction matrix that describes the software component, the abstraction matrix comprising at least one test case scenario and mapped expected results therefore (abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial diagnostic analysis tool” (emphasis), “capture design in CAD”, “analysis”, “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text; Figure 10 – “establish test points and perform design analysis for testability”, “generate knowledge base of design”, and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, software block diagram, test points, and expected values)),

Testing the software component using test cases to generate test results (abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial

diagnostic analysis tool” (emphasis), “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text; Figure 9 and associated text; Figure 10 – “execute software and real time diagnostics”, “process failure data and determine corrective action”, “software verified and validated”, and associated text; col. 2:13 to col. 3:48 (emphasis added to test points, blocks of code, execution of the software code)), and

Evaluating the test results using the abstraction matrix, the evaluating including comparing a test case employed in the testing to the at least one test case scenario of the abstraction matrix and if a match is found, comparing the test result for that test case with the mapped expected result therefore in the abstraction matrix (abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial diagnostic analysis tool” (emphasis), “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text (emphasis added to “select software “test points”, “analyze testability of software design”, “does the design meet testability requirement”, and “redesign software to correct failures”); Figure 9 and associated text (emphasis added to “write software code to determine pass/fail for each test point in each operational mode”, “run software and determine pass/fail data for each test point”, “are there any failures of any test points?” execute diagnostics for fault isolation using knowledge base as model”, and “diagnostic results with isolated faults”); Figure 10 – “execute software and real time diagnostics”, “process failure data and determine corrective action”, “software verified and validated”, and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, test points, blocks of code, execution of the

software code, expected values, actual values, comparison of actual values of the test points to expected values of the test points)).

5. As per claims 2, 13, and 26, Darty discloses step for automatically evaluating the test results using the abstraction matrix (abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial diagnostic analysis tool” (emphasis), “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text (emphasis added to “select software “test points”, “analyze testability of software design”, “does the design meet testability requirement”, and “redesign software to correct failures”); Figure 9 and associated text (emphasis added to “write software code to determine pass/fail for each test point in each operational mode”, “run software and determine pass/fail data for each test point”, “are there any failures of any test points?” execute diagnostics for fault isolation using knowledge base as model”, and “diagnostic results with isolated faults”); Figure 10 – “execute software and real time diagnostics”, “process failure data and determine corrective action”, “software verified and validated”, and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, test points, blocks of code, execution of the software code, expected values, actual values, comparison of actual values of the test points to expected values of the test points)).

6. As per claims 3, 14, and 27, Darty discloses prior to said testing, deriving at least some test cases from the at least one test case scenario of the abstraction matrix

(abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial diagnostic analysis tool” (emphasis), “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text (emphasis added to “select software “test points”, “analyze testability of software design”, “does the design meet testability requirement”, and “redesign software to correct failures”); Figure 9 and associated text (emphasis added to “write software code to determine pass/fail for each test point in each operational mode”, “run software and determine pass/fail data for each test point”, “are there any failures of any test points?” execute diagnostics for fault isolation using knowledge base as model”, and “diagnostic results with isolated faults”); Figure 10 – “execute software and real time diagnostics”, “process failure data and determine corrective action”, “software verified and validated”, and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, test points, blocks of code, execution of the software code, expected values, actual values, comparison of actual values of the test points to expected values of the test points)).

7. As per claims 4, 15, and 28, Darty discloses that the software component comprises multiple states and that the abstraction matrix comprises multiple test case scenarios, each test case scenario being associated with a different state of the software component (abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial diagnostic analysis tool” (emphasis), “capture design in CAD”, “analysis”, “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text; Figure 9 and associated text; Figure 10 – “establish

test points and perform design analysis for testability”, “generate knowledge base of design”, and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, software block diagram, test points, expected values, actual values)).

8. As per claims 8, 19, and 32, Darty discloses that the providing comprises creating the abstraction matrix from a functional specification of the software component (abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial diagnostic analysis tool” (emphasis), “capture design in CAD”, “analysis”, “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text; Figure 10 – “establish test points and perform design analysis for testability”, “generate knowledge base of design”, and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, software block diagram, test points, and expected values)).

9. As per claims 10, 21, and 34, Darty discloses that testing of the software component is based on layers of the software component, and wherein the evaluating comprises evaluating the test results for at least one layer of the software component using the abstraction matrix (abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial diagnostic analysis tool” (emphasis), “capture design in CAD”, “analysis”, “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text (emphasis added to “select software “test points”, “analyze testability of software design”, “does the design meet testability



requirement”, and “redesign software to correct failures”); Figure 9 and associated text (emphasis added to “write software code to determine pass/fail for each test point in each operational mode”, “run software and determine pass/fail data for each test point”, “are there any failures of any test points?” execute diagnostics for fault isolation using knowledge base as model”, and “diagnostic results with isolated faults”); Figure 10 – “execute software and real time diagnostics”, “process failure data and determine corrective action”, “software verified and validated”, “establish test points and perform design analysis for testability”, “generate knowledge base of design”, and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, software block diagram, test points, blocks of code, execution of the software code, expected values, actual values, comparison of actual values of the test points to expected values of the test points)).

10. As per claims 11, 22, and 35, Darty discloses that the providing comprises providing the abstraction matrix to include at least one test case scenario for each layer of the software component (abstract; Figure 1 – elements 20, 22, 24, and associated text; Figure 6 – “commercial diagnostic analysis tool” (emphasis), “capture design in CAD”, “analysis”, “select test point locations”, and associated text; Figure 7 and associated text; Figure 8 and associated text; Figure 10 – “establish test points and perform design analysis for testability”, “generate knowledge base of design”, and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, software block diagram, test points, actual values, expected values)).

11. As per claim 24, Darty discloses that the first computing unit and the second computing unit comprise a single computing unit (abstract; Figure 1 – elements 20, 22 (emphasis added), 24, and associated text; Figure 6 and associated text; Figure 7 and associated text; Figure 8 and associated text; Figure 9 and associated text; Figure 10 and associated text; col. 2:13 to col. 3:48 (emphasis added to functional model, test points, blocks of code, execution of the software code, expected values, actual values, comparison of actual values of the test points to expected values of the test points)).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 5-7, 9, 16-18, 20, 29-31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty (US006173440B1).

14. As per claims 5-6, 16-17, and 29-30, Darty discloses test cases each having a test result which failed to match the mapped expected result therefore in a matching test case scenario of the abstraction matrix, test results of the failing test cases, and mapped expected results from the abstraction matrix for the failing test cases (see rejection of claims 1, 12, and 25).

Darty fails to expressly disclose the concept of an error log that includes a list communicating these features.

Official notice is taken that error logs containing lists are well known in the computer art (e.g. Windows NT screen dump).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Darty by including an error log listing test cases each having a test result which failed to match the mapped expected result therefore in a matching test case scenario of the abstraction matrix, test results of the failing test cases, and mapped expected results from the abstraction matrix for the failing test cases.

One of ordinary skill in the art would have been motivated to do so in order to communicate information about failing test results.

15. As per claims 7, 18, and 31, Darty discloses creating at least one test result and at least one abstraction matrix, and an evaluating step that comprises automatically reviewing each test result by comparing its test case to the at least one test case scenario of the abstraction matrix (see rejection of claims 1, 12, and 25).

Darty fails to expressly disclose that files contain the test results and the at least one abstraction matrix and that the evaluating step comprises automatically reviewing the files.

Official notice is taken that files and the step of automatically reviewing them are well known in the computer art (e.g. Norton Antivirus virus scan).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Darty by including the creation of at least one test results file and at least one abstraction matrix file and a step for automatically reviewing these files in the evaluating step.

One of ordinary skill in the art would have been motivated to do so in order to store the test results and at least one abstraction matrix.

16. As per claims 9, 20, and 33, Darty discloses the execution of test cases, the successful execution of at least one test case, and the unsuccessful execution of test cases.

Darty fails to expressly disclose the automatic extraction of test statistics including total numbers of these executions.

Official notice is taken that the automatic extraction of test statistics including total numbers of executions is well known in the computer art (e.g. Norton Utilities).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Darty by including the step of automatically extracting test statistics including a total number of test cases executed, and at least one of a total number of test cases successfully executed or a total number of test cases unsuccessfully executed.

One of ordinary skill in the art would have been motivated to do so in order to convey the results of tests.

**Conclusion**

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Curcio whose telephone number is 703-305-8887. The examiner can normally be reached on Tuesday through Friday from 7 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam, can be reached on Tuesday through Friday from 7:30 am to 4:30 pm and on alternate Mondays from 7:30 am to 4:30 pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



8/6/04  
JC  
AU 2122

  
**WEI Y. ZHEN**  
**PRIMARY EXAMINER**